Clayton Brady and Adam Rich

Title: Expression of Anoctamin 1 in adult zebrafish

Anoctamin 1 (Ano1) codes for a calcium activated chloride channel that has recently been identified as a marker for gastrointestinal stromal tumors, as well as been shown to be selectively expressed by interstitial cells of Cajal (ICC) in the muscle layers of the gastrointestinal (GI) tract. Ano1 is also expressed in cells that have pacemaker functions in other tissues, as well as in secretory epithelia and in sensory afferent neurons. The objective of this work is to determine zebrafish Ano1 expression patterns in adult and in developing zebrafish. Sagittal and coronal sections of adult zebrafish were probed with anti-ano1 antibody to determine expression patterns. Fluorescence imaging was combined with a tiling algorithm resulting in a single high-resolution image of the entire animal. Identification of anatomical features is challenging because there are few comprehensive atlases available for the adult zebrafish. Therefore hematoxylin and eosin stained sections were prepared and imaged. Annotation of the tiles is underway to create an anatomical reference image that shows the location of visceral organs and brain regions. Results from this work will contribute to an overall understanding of Ano1 function in adult animals.

Keywords: zebrafish, anoctamin 1, imaging, fluorescence, antibody, immunohistochemistry